# Algebra Series

# Exam Review



**2014 - 2015**

1. Evaluate + where a = 6 and b = 64?

2. The weight, in pounds, of **a** wheelbarrow containing **b** bricks is given by the expression 60 + 5b. What is the total weight of the wheelbarrow when it holds 30 bricks?

3. Translate the following into an algebraic expression: “**the cube root of a and b, less seven”**?

4. What is the value of the expression , if x = 3 and

y = -4?

5. Express in simplest radical form?

6. Simplify: 

7. Simplify: 

8. Which could be the first step in order to solve the equation below for ?

9. The formula for the volume of a pyramid is . Which equation solves the formula for h?

a. 3Vb b. h =

c. h = d. h =

10. Write the name of the property that justifies the work being done at step 2.

STEP 1: Distributive Property

STEP 2:

STEP 3: Division Property of Equality

X = -10

a. Subtraction Property of Equation

b. Associative Property over Addition

c. Addition Property of Equality

d. Commutative Property over Addition

11. What is the solution of the following equation?

a. -6 b. -2 c. 2 d. 6

12. Solve:

13. Identify the property that justifies the work between Step 2 and Step 3.

Step 1:

Step 2:

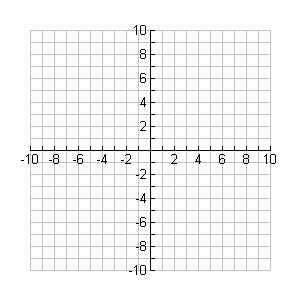
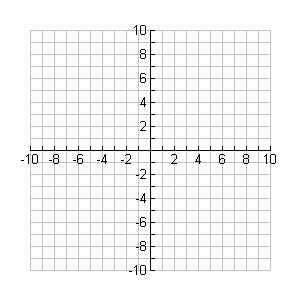
Step 3:

Step 4: -23 = -3x

Step 5:

Step 6:

14. Which equation best describes the graph of the line shown below:



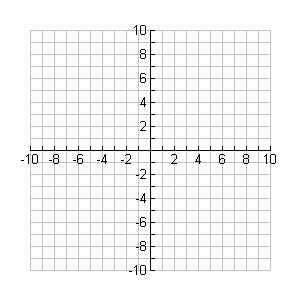
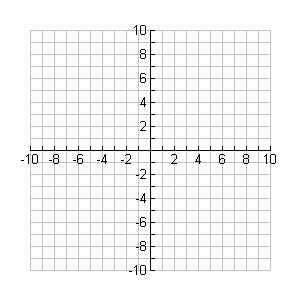
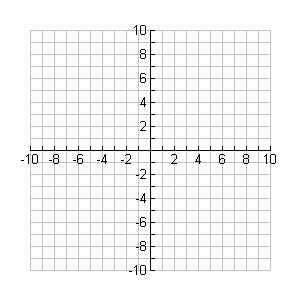
a. b.

15. What is the slope of the line represented by the following equation?

16. What is the slope of a line that passes through the points?

(-1,0) and (5,8)?

17. Which best describes the slope of each line whose graph is shown?

a. b. c.

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18. Which is the equation of a line with a slope of -3 that passes through the point: (-5, 8);

19. Which best describes the transformation that changes the graph of the line to ?

20. Which of the following sets of ordered pairs is a function?

a. {(2,1),(2,2),(3,4),(5,6)}

b. {(-2,-1),(1,2),(3,4),(1,5)}

c. {(1,2),(2,2),(3,3),(2,4)}

d. {(1,1),(2,1),(3,2),(4,4)}

21. If , what is the value of when x = -5?

22. Which of the following is the range of the function represented below?

x y

0 0

1 6

-4 1

4

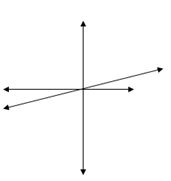
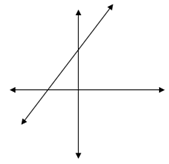
23. Given the x-intercept of -2 and the y-intercept of 7, write an equation in slope-intercept form.

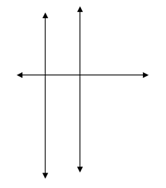
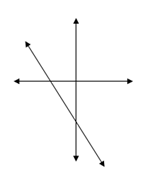
24. **a** varies directly as **b** and the constant of variation is .

Which equation represents the relationship?

a. a = b. a = 4b c. a = b + d. a = b -

25. Which graph represents a direct variation?

 a. c.



b. d.

26. Suppose **t** varies directly as **c**. Write a direct variation equation that relates **t** and **c**.

27. Is the equation 2(2x + 4) = -10 equivalent to 4x + 8 = -10?

Are the equations equivalent? If so, which property?

28. Using 3x – 4(2x +4) = 5x, complete the following:

= 5x

29. Write an equation that is equivalent to:

3(5 – 4x) = 5 – 4(1 – 2x)

30. The total cost (c) in dollars of renting a sailboat for n days is given by the equation c = 130 + 40n. If the total cost was $330.00, for how many days was the sailboat rented?

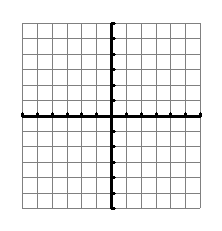
31. Evaluate -2 when x = -4.

32. What is the equation of the line that has a slope of  and passes through the point (2,-6). Write the equation in standard form.

33. What are the x-intercept and y-intercept of the graph of

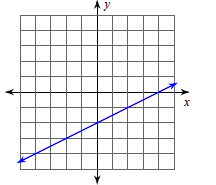
3x + 4y = 24?

34. The relation {(2, 5), (3, 6), (4, 8), (5, 6)}, is it a function?

****35. Graph the following equation: y = -3x -4

36. Does the point (5, -9) lie on the line 6x + 2y = 12?

37. Write the equation of the line for the graph below?



|  |  |
| --- | --- |
| **x** | **y** |
| 1 | 3 |
| 3 | -3 |
| 5 | -9 |

38. Write an equation for the following table in slope-intercept form.

39. The lengths of the sides of a triangle are y, y +2, and 8 centimeters. If the perimeter is 58 centimeters, what is the value of y?

## 40. Simplify the radical .

41. Joe’s solution to an equation is shown below.

Given: x + 5(x +10) = 97

Step 1: x + 5x + 10 = 97

Step 2: 6x + 10 = 97

Step 3: 6x = 97 – 10

Step 4: 6x = 87

Step 5: =

Step 6: x = 14.5

Did Joe make a mistake, if yes, at which step. If not, show your work to prove the answer.

42. Marsha just finished solving an equation and the last line of her work is 5 = 6. What is the solution?

43. What is the value of when x = 2 and y = -3?

44. What is the domain of the relation shown below?

|  |  |
| --- | --- |
| x | y |
| 3 | 15 |
| 5 | 21 |
| -2 | 0 |

45. What are the range values of the function f(x) = -2x2 + 4 for the domain values {-3,0,1}?

46. Point A(3,4) lies on a line that represents a direct variation equation. Name some other points that line on that line.

47. What is the value of the function f(x) = x2 - 3x + 2

when x = -2

48. What is the equation of a line that passes through the point (3,8) and has a slope of 0?

49. What is the solution to the following equation?

x – 6 = x + 3

50. The data in the table shows the cost of renting a bicycle by the hour, including a deposit.

**Renting a Bicycle**

|  |  |
| --- | --- |
| Hours (h) | Cost in dollars(c) |
| 2 | 23 |
| 5 | 53 |
| 8 | 83 |

If hours, h, were graphed on the horizontal axis and cost c, were graphed on the vertical axis, what would be the equation of the line that fits the data?